Electronic Version
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Claims

[c1] A control system for a vehicle comprising:
a GPS system generating a vehicle position signal for a vehicle relative to a surface;
a plurality of driver inputs;
a plurality of vehicle inputs; and
a controller coupled to the GPS system, the plurality of driver inputs and the plurality of vehicle inputs, said controller determining a predicted path in response to the plurality of driver inputs and the vehicle inputs and a desired path in response to the GPS system, said controller performing a comparison of the predicted path and the desired path, said controller generating a control signal in response to the comparison.

[c2] A control system as recited in claim 1 wherein said controller performs the comparison using colinearity of a confidence level.

[c3] A control system as recited in claim 1 wherein said controller performs the comparison using a linear regression model, said threshold corresponding to an estimated error.

[c4] A control system as recited in claim 1 wherein the linear regression model is a function of pitch angle, yaw angle and vehicle speed.

[c5] A control system as recited in claim 1 wherein the plurality of vehicle inputs includes vehicle speed.

[c6] A control system as recited in claim 1 wherein the pitch angle and yaw angle are determined in the GPS receiver.

[c7] A control system as recited in claim 1 further comprising an audible indicator, said audible indicator operating in response to the control signal.

[c8] A control system as recited in claim 1 further comprising a visual indicator, said visual indicator operating in response to the control signal.

[c9] A control system as recited in claim 1 further comprising an intervention module, said intervention module operating in response to the control signal.

[c10] A control system as recited in claim 1 wherein the intervention module generates a vehicle speed restriction.

[c11] A control system as recited in claim 1 wherein the intervention module generated a change in a center of gravity by controlling a suspension component.

[c12] A control system as recited in claim 1 wherein the intervention module generated a change in a center of gravity by controlling a shock absorber.

[c13] A control system as recited in claim 1 wherein the intervention module generates a steering angle change.

[c14] A control system as recited in claim 1 wherein the intervention module generates a gas tank load shift.

[c15] A control system as recited in claim 1 further comprising a road condition input, said controller generating the predicted path in response to the road condition input.

[c16] A control system for a vehicle comprising:
a driving condition database having driving conditions therein;
a GPS system generating a vehicle position signal for a vehicle relative to a surface;
a plurality of driver inputs;
a plurality of vehicle inputs; and
a controller coupled to the GPS system, the plurality of driver inputs and the plurality of vehicle inputs, said controller determining a predicted condition in response to the plurality of driver inputs, the vehicle inputs and the driving conditions and a desired condition in response to the GPS system and the driving conditions,

said controller performing a chaos-theory based comparison of the predicted path and the desired path, said controller generating controlling an intervention module or an indicator in response to the comparison.

[c17] A control system as recited in claim 16 wherein the predicted condition comprises a predicted path and the desired condition comprise a desired path.

[c18] A control system as recited in claim 16 wherein said controller performs the chaos theory based comparison using colinearity of a confidence level.

[c19] A control system as recited in claim 16 wherein said controller performs the comparison using a linear regression model, said threshold corresponding to an estimated error.

[c20] A control system as recited in claim 19 wherein the linear regression model is a function of pitch angle, yaw angle and vehicle speed.

[c21] A method of controlling an automotive vehicle comprising:

generating a vehicle position signal for a vehicle relative to a surface;

generating a plurality of driver inputs;

generating a plurality of vehicle inputs;

determining a predicted path in response to the plurality of driver inputs and the vehicle inputs and a desired path in response to the vehicle position;

performing a comparison of the predicted path and the desired path; and

generating a control signal in response to the comparison.